US Army Corps of Engineers®
Engineer Research and Development Center

Digital Terrain Elevation Data (DTED) / High Resolution Terrain elevation (HRTe) Levels 0 to 5

Description and Background

DTED and HRTe are standard National Geospatial-Intelligence Agency (NGA) products that provide quantitative elevation data in digital format for military system applications.

DoD must satisfy two general elevation requirements; global medium resolution (DTED Levels 0, 1, and 2) and regional high-resolution data (HRTe Levels 3, 4, and 5). The Shuttle Radar Topography Mission (SRTM) was selected to address the global medium-resolution requirement. The NGA High-Resolution Terrain elevation (HRTe) project addresses the regional high-resolution requirement.

DTED Levels 1 and 2 are produced from cartographic (hard-copy map) source, photogrammetric source or a combination of both. DTED Level 0 is produced by thinning DTED Level 1. Elevation postings are processed at regular intervals to produce a grid with uniform geographic spacing between each post. The Shuttle Radar Topography Mission (SRTM) has collected near global coverage at both DTED levels1 and 2 spacing. DTED Levels 1 and 2 are defined as bare earth or surface terrain data whereas SRTM is defined as reflective (vegetation and man-made features affect the elevations recorded.

DTED/HRTe Characteristics:

Level	Posting Interval (arc seconds)	Resolution	Circular Error (absolute)
DTED 0	**30**	**~900 m**	**N/A**
DTED 1	**3**	**~90 m**	**50 m**
DTED 2	**1**	**~30 m**	**16 m**
HRTe 3	**0.333***	**~10 m**	**10 m***
HRTe 4	**0.111***	**~3 m**	**10 m***
HRTe 5	**0.037***	**~1 m**	**5 m***

*** Posting Intervals and Accuracy values for HRTe levels 3-5 are proposed.**

Key Capabilities

Line-of-sight analyses, terrain profiling, 3-D terrain visualization, mission planning/rehearsal, and modeling and simulation.

DTED is distributed via CD, the Internet (DTED 0), and classified NGA networks (DTED 1 and 2 and SRTM-DTED2). SRTM-DTED1 over the U.S. and territories is also distributed over the Internet by the U.S. Geological Survey.

The DTED coordinate reference system is geographic. The horizontal datum is World Geodetic System 1984 (WGS 84). The vertical datum is Mean Sea Level. The format is ASCII labeled variable length records. The HRTe coordinate reference system and format is under consideration.

Current Status

SRTM-DTED2 processing has been completed for all or nearly all of the global land area from 56 degrees South latitude to 60 degrees North latitude. Void areas (areas of no data return) do exist within the data and are being filled primarily with DTED Level 1. These areas are identified within the product metadata.

Disparate sources of elevation data representing the HRTe levels have been collected over selected areas. It is proposed that these data be uniformly formatted and archived once the HRTe specification is agreed upon and made available DoD wide by NGA. Tasking of additional areas at these levels is ongoing and determined by service requirements and DoD priority.

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